values of fuels, as determined by the calorimeter or by computation, but the temperature obtainable by the use of any particular source of heat energy depends upon so many variables that it cannot be reduced to tabular form. Experiment and practice have developed a certain amount of knowledge regarding the temperatures obtainable, but this is an uncertain guide regarding the temperature effects which may be expected under different conditions.

The temperature obtainable by the oxidation of a combustible depends upon:

(a) The quantity of heat released by the oxidation of a unit of combustible;

(6) The oxygen supply or the amount of air used;

(c) The temperature of the fuel and air supply at the point of combination;

(4) The heat capacity of the products of combustion;

(5) The velocity of the reaction of combustion;

(/) The combustion chamber;

(g) The completeness of the reaction.

Each one of these seven important variables has a considerable effect upon the temperature produced, *a* is readily obtainable. *b* and *c* are susceptible of control and in turn bring *d* under control. The problem may be solved by making certain assumptions regarding the other variables. These assumptions are:

(6) That complete, instantaneous combustion occurs;

(7) That the total amount of heat released is contained in the products of combustion, *i.e.,* that combustion occurs in an athermal chamber which does not absorb or give off heat.

It is impossible to realize either of these assumptions in practice, but they permit the computation and plotting of curves which supply a large amount of " *relative* " information regarding the temperature possibilities of a combustible under a

variety of conditions. True, the values are only approximate, only relative, the assumed conditions impossible, but at the same time these curves permit a very close approximation of the results obtained in practice and of the effect of variations in operating conditions upon the temperature realized. There is a time element in the